On the Low Formalization of Polyvinyl Alcohol Fiber

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Table 1. Determination of carboxylic groups under various condition.

No.	Substance and pretreatment.	mg. M.B./Subst.	Mol. vinylgroup. /mol. COOH
1.	P. V. A. fiber.	3.02	2420
2.	No. 1. after the heat-treatment.	1.099	6600
3.	No 2. after formalization (Vinylon)	0.250	27500
4.	After immersion of No. 2 in water (40°C, 24 hrs.)	1.129	5650
5.	After immersion of No. 3 in water (45°C. 17 hrs.)	0.472	14600
6.	After immersion of No. 3 in boiling water (1 min.)	0.624	11200
7.	〃 (5 min.)	0.695	10000
8.	〃 (10 min.)	0.777	8990
9.	〃 (30 min.)	1.028	6690
10.	〃 (60 min.)	2.38	2940
11.	〃 (120 min,)	2.30	3010

Table 2. Determination of carboxvlic groups after bleaching.
(The original sample is No. 3 of table 1.)

Bleaching agent.	Condition of bleaching	mg. M.B./g. Subt.	Mol. vinylgroup. /Mol. COOH
Bleaching-powder	Cl_2 1g/L,N/1oH_2SO_4, 10c, 17 hrs.	0.851	8100
	Cl_2 1g/L, CH_3COOH, 1g./L 17 hrs.	1.73	3960
	Cl_2, 3.4g/L, CH_3COOH, 1g./L, 17 hrs.	0.803	8580
	Cl_2, 5g/L, CH_3COOH, 1g./L, 17 hrs.	9.12	760
H_2O_2	g./L, 45°C, 17 hrs, PH=8.0	0.460	15000
〃	50g./L, 45°C 17 hrs, PH=8.0	1.345	5090
K-permangan.	2g./L, 10°C, afterwards immersed in oxalic acid, washed with water, dried.	0.510	13680
Sodiumchlorite.	5g./L, 45°C, 17 hrs, without CH_3OOH.	0.530	13040
	1g./L, 45°C, 17 hrs, CHCOOH 1g./L.	0.952	7240
	5g·/L, 10°C, 17 hrs, without CH_3COOH	0.576	11960
	5g./L, 10°C, 17 hrs, CH_3COOH 1g./L.	0.438	15620
Sodium hydrosulphite.	5g./L, 45°C, 17 hrs,	0.741	9300
	50g./L, 45°C, 17 hrs,	0.973	7070

39. On the Low Formalization of Polyvinyl Alcohol Fiber

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By the manufacture of synthetic fiber Vinylon, polyvinyl alcohol fiber, which has been subjected to heat treatment, is formalized ordinary with a bath of the following composition: H_2SO_4 250g/L, Na_2SO_4 300g/L, HCHO 60g/L.

For the purpose of utilization of the wash liquor, formalization of the fiber with this wash liquor havs been undertaken. The liquor have the following composition: H_2SO_4 80~150 g/L, Na_2SO_4 100g/L, HCHO 10-2 g/L. It have been found that polyvinyl alcohol fibers can be easily formalized with this dilute bath and formaldehyde is almost exhausted. This process may have a practical application.